

REMARKS

Applicant expresses appreciation to the Examiner for consideration of the subject patent application. Claims 1-39 were originally presented. Claims 14-22, 32-37, and 39 have been cancelled without prejudice. Claims 40-41 have been added.

The specification has been amended to claim priority to U.S. patent application 09/430,078 filed on October 29, 1999 and entitled SIGNAL DERIVED BIAS SUPPLY FOR ELECTROSTATIC LOUDSPEAKERS. In addition, the specification has been amended to correct typographical errors.

35 U.S.C § 102(b) – Response

Claims 1-5, 9, 11-13, 23-30, and 38-39 were rejected under 35 U.S.C 102(b) as being anticipated by Lange, Jr. (U.S. Patent 3,632,903). This includes independent claims 1, 23, 25, and 38. The claims have been amended to address the concerns raised by the Examiner.

Claim 1 has been amended to include “at least three secondary connection taps including a center tap, wherein the at least two stators are connected to at least two secondary connection taps that are main audio output taps” and “a bias return to the center tap”. This embodiment is illustrated in FIG. 4a and 5 where both of the connection taps that supply the audio signal to the stators are used to bias the diaphragm.

The use of two connection taps (in addition to the bias return) is valuable because it provides faster charging than a system that includes just one connection tap and a bias return. The faster charging is produced because the audio signal charge is used for the bias voltage regardless of which tap the audio signal starts on with the program material. In other words, there is no guarantee that the program material which creates the audio signal will contain a signal on just one tap to initially charge the bias circuit properly. Thus, the claimed invention optimizes for this situation. The elements of claim 1 are not taught in Lange or Maeda, and claim 1 should be allowed.

Claims 2-13 depend on claim 1 which has been shown to include patentably distinct subject matter, and thus all claims depending from claim 1 should be allowed. In addition, claim

2 includes a capacitor and voltage multiplier which forms the rectification unit. Claims 3 and 4 include a shunt regulator with a zener diode and capacitor. Claim 5 further includes the zener diode and capacitor in parallel.

Claim 6 includes “two additional secondary winding taps that provide a voltage greater than the secondary voltage” for use by the bias circuit. The prior art does not teach or suggest that a higher voltage can be provided to the bias circuit using more windings in addition to the main audio taps. This configuration is illustrated in FIG. 5 which has the higher voltage taps 53 and 54 that are used for biasing the diaphragm and lower voltage taps 51 and 52 that are used for biasing the stators.

Claims 9 and 10 further include resistances at points in the circuit that optimize charging. Claims 11 and 12 depend from claim 1 and further include components for the rectification unit and the voltage limiting unit.

Claim 23 includes the patentably distinct subject matter of “at least one alternating current voltage limiting unit, coupled to at least two secondary connection taps”. An AC limiting unit combined with a biasing circuit is not taught or suggested by the prior art. Claim 24 further includes a voltage multiplier.

Independent claim 25 includes the subject matter of “a secondary transformer winding which has at least two secondary connection taps and a center tap.” As discussed above, the prior art does not teach or suggest the use of three taps from a secondary transformer winding for charging “the diaphragm faster by using the at least two secondary connection taps.” Dependent claims 26-31 further include a voltage multiplier, voltage limiter, shunt regulator and other elements that are patentably distinct when considered in light of independent claim 25.

Claim 38 sets forth the limitation of “wherein the at least two diaphragms are connected to the at least two secondary connection taps.” Neither Lange nor Maeda teach or suggest two diaphragms biased by two or more secondary connection taps that carry an audio signal.

35 U.S.C § 103(a) – Response

Claims 7 and 8 were rejected under 35 U.S.C § 103(a) as being unpatentable over Lange, Jr. in view of Maeda (US Patent 5,471,540). Claim 7 has been amended to include a bias circuit

that receives a power signal from the “center taps of each of two or more transformers, and configured to supply a bias voltage to more than one electrostatic loudspeaker diaphragm” which is not taught or suggested by Lange in view of Maeda. Maeda teaches using end taps from a second transformer as a booster voltage, but does not teach or suggest using the center taps of two transformers to supply a bias voltage.

Claim 8 has been amended to include the language of “the more than one transformer receives audio signals from at least two audio channels.” The prior art does not teach or suggest transformers and bias circuits which receive signals from the audio channels. Particularly, Maeda uses a transformer 41 (Col. 8, lines 56-62) that is supplying power from a commercial power source and not from an audio signal source. Thus, claims 7 and 8 are patentably distinct from Lange and Maeda.

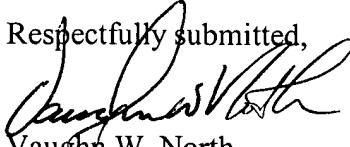
Claims 10 and 30 were rejected as being unpatentable over Lange, Jr. in view of Bobb (U.S. Patent 3,895,193). Claims 10 and 30 depend from the independent claims which have been amended to include patentably distinct subject matter. These two claims also include resistance in a location that optimizes charging which is not taught by the prior art. Thus, claims 10 and 30 should be allowed.

CONCLUSION

In light of the above, Applicant respectfully submits that pending claims 1-13, 23-31, 38, 40-41 are now in condition for allowance. Therefore, Applicant requests that the rejections and objections be withdrawn, and that the claims be allowed and passed to issue. If any impediment to the allowance of these claims remains after entry of this Amendment, the Examiner is strongly encouraged to call Steve M. Perry at (801) 566-6633 so that such matters may be resolved as expeditiously as possible.

The Commissioner is hereby authorized to charge any additional fee or to credit any overpayment in connection with this Amendment to Deposit Account No. 20-0100.

DATED this 26th day of September, 2003.

Respectfully submitted,

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